Remarks

Claims 1-14 are pending in the above-identified application. Claims 1, 4, 6, 7, 10, 12, and 13 are amended, claims 5, 8 and 11 were previously amended, claims 2, 3, 9, and 14 are original, and claim 15 was cancelled.

The Examiner objected to the claims for certain informalities. With this amendment the claims have been amended to overcome the objections. The Examiner is therefore respectively requested to reconsider the objections to the claims.

The Examiner rejected claims 1 - 14 under 35 U.S.C. 103(a) as being unpatentable over Paajanen et al. (US 7349404) in view of Jarl (US 2003/0026262) in view of Yoshihiro et al. (US 5239539) in view of Toyama et al. (US 6597696). Note that US 5239539 is actually issued to Uchida et al. and not to Yoshihiro et al.

MPEP §706.02(j) states:

"To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)."

MPEP §2143.01 provides: The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572,1577,221 USPQ 929, 933 (Fed. Cir. 1984).

One court further noted that there were three possible sources for such motivation, namely "(1) the nature of the problem to be solved; (2) the teachings of the prior art; and (3) the knowledge of persons of ordinary skill in the art." Id. at 1357, 47 USPQ2d at 1458. Here, according to this court, the Board had relied simply upon "the high level of skill in the art to provide the necessary motivation," without explaining what specific understanding or technological principle within the knowledge of one of ordinary skill in the art would have suggested the combination.

Paajanin et al. discloses a method and system for connection set-up in a communication system which comprises a plurality of first processing units, e.g. switching units, and a plurality of second processing units, and transmits information as a stream of information cells having cell identification. For reducing the number of messages in setting up connections, the first processing units are connected to the second processing units, and information cells are supplied to several processing units, which distinguish between the cells based on the cell identification for further processing. The information is preferably ATM transmitted, and all first processing units are connected to all second processing units using virtual path connections on the ATM

layer. The processing unit to which the information cell is directed is identified using virtual channel.

Jarl teaches a method and apparatus for dynamically allocating units of user data to resource devices when the user data is transmitted in small packets multiplexed onto long packets and both the long and short packets contain routing information relating to each unit of user data. In the arrangement a mapping table is provided containing identifiers that identify a group of resource devices. A receiving unit extracts routing information from the long packets. For each unit of data, a first bit sequence of the routing information is used to address the table and obtain a group identifier. Subsequently, a second bit sequence taken from the routing information is concatenated onto the group identifier obtained to generate a resource identifier identifying a single resource device. The mapping table is preferably implemented as a writable RAM or portion of the same.

Uchida discloses a main processor that assigns originated-call processings to each of a plurality of call processors in the sequence of call originations. A switching state controller collects usage information about a plurality of buffers composing the switching network in the ATM exchanger. The call processors to which call processings are assigned perform the call processings based on the content of switching state controller a main processor assigns a call processing for an originated call to one of a plurality of call processors by referring to the call processing assignment table memory with the virtual channel identifier corresponding to an originated call. Call processing loads are distributed among call processors.

Toyama teaches, in a variable length switch for exchanging CPS-packets by AAL2, an effective variable length packet switch without limiting capacitance of a switching section when

the CPS-packets are loaded on an ATM cell and exchanged. An interface section receives the ATM cell in which the CPS-packets are multiplexed and packed, disassembles the received ATM cell and demultiplexes and unpacks the CPS-packets loaded on the ATM cell. When output paths of the plurality of the CPS-packets are identical, the CPS-packets are transferred by multiplexing and packing them in the same connection. In an interface 110-1 to 110-N on a transmission side, a cell transferred from the switching section 100 is disassembled, and the CPS-packet are multiplexed and packed in a cell corresponding to an output path of the CPS-packets.

The Examiner has admitted in his discussion of the claim 1 rejection that Paajanen et al. does not teach the Resource Manager and AAL2 connection control being located in a single packet switch control wherein the single packet switch control effects switching of individual packets from the external PVCs and to internal PVCs.

The Examiner then cited Jarl, but admitted that the combination of Paajanen et al. and Jarl does not teach the single packet switch control establishing an even distribution of calls among the transcoders for an uneven call load on the external PVCs.

The Examiner then cited Uchida, but admitted that the combination of Paajanen et al., Jarl, and Uchida does not teach transcoding the call from a first format to a second format in the DSPs.

The Examiner then cited Toyama, and alleged that it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Paajanen et al., Jarl, and Uchida of to include transcoding the call from a first format to a second format in the DSPs as suggested by Toyama et al. because it allows a voice call payload to be processed at an upper layer, and converted to a second format that is required by an endpoint.

Each of the independent claims has been similarly rejected by the Examiner.

The present invention is described in general terms on page 5 of the specification. In one embodiment of the present method, the individual calls within the AAL2 PVCs are distributed to a set of DSPs acting as transcoders for the digital representation of voice. The DSP transcodes the voice encoding from one algorithm into another. In the case of the Wireless Access Gateway, the DSP transcodes from the Adaptive Multi-Rate (AMR) encoding into either the Pulse Code Modulated (PCM, G.71 1) encoding or the Adaptive Differential Pulse Code Modulated (ADPCM, G.726) encoding. It is to be understood that a single DSP may transcode many channels at a time, and that an individual call through a DSP is called a DSP channel.

In another embodiment, the present method makes use of an intermediate node between the external AAL2 PVCs and the set of transcoders. All external AAL2 PVCs are terminated at this intermediate node. A new set of internal AAL2 PVCs is setup between the intermediate nodes and all possible transcoders. Based upon an algorithm that takes into account the state of the transcoders, the current load on the transcoders, the state of the internal AAL2 PVCs, and other factors the method results in the allocation of a DSP channel for the new call. This method then instructs the new node to switch the individual AAL Type 2 CPS-Packets from an external PVC to an internal PVC.

The differences over the prior art are as follows. An embodiment of the present method allocates the individual CIDs to transcoder channels on an as needed basis such as the initiation of a new call. There is no fixed relationship between the PVCs and the transcoders. As a result maintenance actions may be allowed on either the PVC or the transcoder without affecting the

maintenance state of the other. The present method allows for an even distribution of load among the transcoders even if the load on the PVCs is uneven.

Regarding FIG. 1, Paajanin et al. teach that FIG. 1 illustrates the resulting topology structure with fully developed virtual path connections 2 between the AAL switching units 1 and the DSP (Digital Signal Processor) units 3. The virtual path connections are generated not only between all switching units 1 and all DSP units 3 but also between each of the switching units 1 as shown in FIG. 1. When the VPC (Virtual Path Connection) topology shown in FIG. 1 is created beforehand, the number of ATM-layer level connection setups and deletions are reduced during runtime to zero.

DSP units (e.g. Configurable DSPs) 2 and AAL2 Units 1 are units with several processors. Each processor is capable of receiving and sending cells (i.e. processors have SAR capabilities). There is preferably only one interface for each unit, which is shared (commonly used) by each processor of the respective unit. In such an environment a capability to transfer a cell (information or message cell) through one interface to the appropriate processor is needed. Furthermore, the functionality of sharing this interface between several processors sending at the same time is necessary.

In Paajanin et al. a virtual path (VP) means a unidirectional transport of ATM cells that are associated by a common identifier value. A virtual path connection (VPC) is a concatenation of virtual path links that extends between the point where the virtual channel identifier values are assigned and the point where those virtual values are translated or removed.

Paajanin et al. teaches a virtual path piping (in the following also termed VP-piping), which significantly increases the performance by reducing the amount of required messages in

the connection setup. This concept utilizes only the basic ATM functionalities and makes advantage of the hardware concept used in the system.

In Paajanin et al. the key idea of the VP piping is to connect all the switching units in the adaptation layer such as AAL (e.g. AAL2) switching units, to all processing units such as DSP processing units, with virtual path connections (VPC). This leads to the creation of a full mesh topology between the AAL (e.g. AAL2) and DSP units.

Paajanin et al. also teach that in the new VP-piping concept, the set-up uses a co-operation between DSP RM (Resource Manager) and AAL2 connection control. This co-operation means that both resource managers select a set of resources (AAL2 switching unit and DSP processors) where there are still resources available for a new "connection". The term "set of resources" means the exact processor/DSP processor that is available for the leg. The processor further defines a set of VPC connections. A set of VPC connections is all the connections from one unit (as already stated above, unit's processors share the VPC). The set of VPCs might be limited below maximum if CAC (Connection Admission Control) functionality considers certain VPC as fully booked. The sets defined by both resource managers involved (DSP RM-AAL2 CC (connection control), or AAL2 CC and AAL2 CC) is compared with each other--the comparison result indicates the set of possible VPCs to be used for this leg and one of those is selected. These procedures are the basic rules. Additionally, for example, the macro diversity combining function can further restrict the selection DSP unit to exactly one possible unit since the unit already handles one "sister" leg of same connection. The selection of the AAL2 switching unit may also be restricted to one unit if that unit handles the N_cid required. In these cases the set is actually limited to only these sets of VP connections that are possible. In

some case there is only VPC possible. If it does not have resource available, the connection needs to be rejected.

In the rejection of the claims the examiner has been forced to rely on four different references and in the case of the first reference issued to Paajanen, the examiner has also resorted to relying on inherency. In independent claim one, regarding the claimed element of allocating individual CID's to transcoder channels on an as needed basis without a fixed relationship between external PVCs and transcoder channels, the examiner has stated that there is inherently not a fixed relationship between external PVCs and the transcoder channels because the transcoder channels are setup dynamically between the AAL two was and DSPs. The first reference is directed to the method and system for connection set up in a communication system comprising several switching units and several processing units.

It is always incumbent on an Examiner to develop reasons supporting a reliance on inherency. (MPEP 2112 (IV)). To fully develop reasons, the Office must provide reasonable support for invoking inherency. This reasonable support requires "a basis in fact" (evidence) and/or reasoning tending to show that an allegedly inherent feature necessarily flows from the teachings of the applied art (MPEP 2112 (IV), citing Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

In the present officer action the Examiner stated: "allocating individual CIOs (col. 1 lines 34-36) to transcoder channels (individual call connections between AAL2s and DSPs) on an as needed basis without a fixed relationship between external PVCs and transcoder channels (there is inherently not a fixed relationship between external PVCs and the transcoder channels because

the transcoder channels are setup dynamically between the AAL2s and DSPs". It is believed that the Examiner has not provided the reasonable support for invoking inherency.

In response to applicant's argument the Examiner stated that the conclusion of obviousness is based upon improper hindsight reasoning. The Examiner correctly stated that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but that such a reconstruction is proper so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure. However, this is exactly the point that it is only with knowledge gleaned only from the applicant's disclosure that one skilled in the art would combine the references.

The second reference issued to Jarl was cited by the examiner for the teaching of a conversion unit 210. According to the second reference the conversion unit 210 performs a mapping function to map incoming CPS packets to one of the decompression/compression units 220. The second reference is concerned with dynamically allocating units of user data to resource devices when the user data is transmitted in small packets multiplexed onto long packets and both the long and short packets contain routing information relating to each unit of user data.

The third reference of Uchida is directed to a controller for distributing loads among call processors. According to the third reference for call processing assignment a table memory is provided. An MPR memorizes which CPR performs the call processing corresponding to respective channel identifiers attached to the cells in an originated call. A switching state controller operates by referring to the call processing assignment table memory with a channel identifier corresponding to an originated call. The call process is assigned for the originated call

to one of the CPRs. For uniform disturbing of loads among in the CPRs, an MPR periodically updates the contents of the call processing assignment table based on the information stored in the switching state controller.

In the fourth reference of Toyama, a variable length packet switch is a disclosed. A switching section is a switch for exchanging an ATM cell and determines an output path by referring to a specific area in the header of the ATM cell as shown in figure 8 of the fourth reference. A variable length packet switch is disclosed according to the description as having an upper layer processing functioning section that comprises a CPS packet processing section for performing the multiplexing/unpacking and multiplexing/packing for the CPS packet in an upper layer processing section for processing a signal of the CPS packet payload. The examiner has attempted to show why one skill in the art would combine all of these for references including the inherent requirement of reference one to arrive at the claimed invention of the present application. However, although each of these references in general may be considered to be in the field of handling call processing, each of the references addresses different types of issues and different types of environments. It is only with hindsight of applicant's invention that one that would seek out these references and arrived at some combination of the four references that would seem to anticipate the claimed invention.

For example the first reference already provides for connection set up a communication system for a plurality of first processing units on a plurality of second processing units. The first reference provides for control of such procedures. Therefore one of skill in the art would not necessarily look to the second reference for providing a central controller to assign the CID's individual DSP channels and control switching to the DSPs. If one skill in the art was already

taught control from the first reference, then one would not have a reason to proceed to look to the second reference for control. Thus, the independent claims of the present application are neither anticipated nor obvious in view of any combination of the cited references.

Since the dependent claims include all the limitations of the respective independent claims upon which they depend, the dependent claims are therefore also allowable over the cited prior art for the reasons set forth above with respect to the independent claims.

Reconsideration and withdrawal of the rejections is therefore respectfully requested. In view of the above remarks, allowance of all claims pending is respectfully requested.

This application is believed to be in condition for allowance, and such action at an early date is earnestly solicited. If a telephone conference would be of assistance in advancing the prosecution of this application, the Examiner is invited to call applicant's attorney.

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